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NATIONALIZATION REFLECTIONS

SEVERAL references to the nationalization issue were made at the annual meeting of the Tottenham and District Gas Company. After Mr. Henry Woodall had touched upon it in his address to the stockholders—reported elsewhere in this issue—Mr. E. J. K. Fussell, in returning thanks for his re-election as a Director, said he would probably prove to be one of the last of the bad old barons, for there would be no such elections if the Industry were nationalized. While the future was so uncertain, he was certain that whoever managed the Gas Industry in the future would not be able to improve upon the service which had been given to the public by private enterprise. The Company was established in 1859 and had carried on for nearly 100 years, and was in fact a limited company before it became a statutory company, and whoever searched its records would find that it had always given good and honest service. He anticipated that in the future one would have to wait until the Minister of Fuel and Power had fixed the price of coal and coke, the Chancellor of the Exchequer had agreed that new capital should be raised, the Board of Trade had fixed wages, and the Civil Servants had made up their minds whether priority certificates should be issued, and one would then be in a very happy position to get a supply of gas at all. With all these difficulties in front of them they had just to await the pleasure of the Government with regard to their future.

Later in the meeting Colonel H. C. Smith, Managing Director, who is also Acting Chairman of the British Gas Council, in returning thanks for a vote of thanks to all concerned in the work of the Company during the past year, said he had spent nearly 40 years in the Gas Industry, and he had never met people who were so enthusiastic about their jobs as were those in the Industry. That was one thing which he did not think the nationalizers had yet appreciated. In all the suggestions for nationalization the human factor was always omitted, and they did not realize the enthusiasm there was in the Industry for the jobs that the individual did. It was always a point of honour that gas supply must not fail, and the man who was putting coal into the retorts realized that just as much as the works engineer in his office. All over the country one found that same spirit in the Gas Industry. They had all been thinking about nationalization for some time, and so far as he was concerned he had not yet seen a single argument which would justify such a drastic change of ownership in the Gas Industry. The relationship between employers and employed were always first class. The National Joint Industrial Council, which looked after those relationships, had given evidence to the Committee of Enquiry into the Gas Industry, and all that evidence went to show that the relationships were absolutely first class. He was sure that no change in ownership was going to bring any benefits to those engaged in the Tottenham Company or to the consumers it served. On the contrary, he thought they might expect rather the reverse.

The Prime Minister called a conference a few days ago, and met on one day a party of trade unionists and on the next day the employers. Cabinet Ministers had explained that a dangerous time lay ahead for this country for the next two or three years, and they showed how essential it was that people should co-operate towards the utmost production. At the conference of the employers the President of the Federation of British Industries, after the Cabinet Ministers had finished speaking, offered the Prime Minister the support of industry, but said that one thing the Government ought to do was to relieve industry of any uncertainty as to nationalization; the threat of nationalization was causing unrest in industry and distracting people, and taking their attention from more vital things.

Referring to the British Gas Council's suggestion that the Minister of Fuel and Power should declare that at any rate for this dangerous period no interference with the Gas Industry would take place, Colonel Smith said it was not that people in the Industry were afraid merely of the effect that nationalization might have upon themselves, but because they honestly and sincerely believed that if the country was to achieve that maximum production which they were told was absolutely essential for their safety, it was necessary that the Gas Industry should produce all the gas that was required, and that there should be no curtailment of that supply because of the plans for nationalizing it.

As we mentioned in the "JOURNAL" last week, Mr. Shinwell, Headmaster of the Nationalization Preparatory School, addressing the British Electrical Development Association, said there were some people connected with the electricity industry who had presented a challenge to the Government. The Government, he added, could not allow itself to be intimidated by any such challenge. This point of view has by no means prevented chairmen of electricity companies from their continuous challenge. For example, Sir Robert Renwick, Chairman of the County of London Electric Supply Company, in the course of his speech at the Company's annual meeting certainly spoke vigorously and vehemently against nationalization: "I want to say immediately that I am addressing my remarks not so much to you as shareholders, but to the 10 million consumers of electricity throughout this country. . . . If and when the electricity industry is nationalized, it will be the first prosperous and virile industry in the range of fuel and power which will come under State ownership." Sir Robert Renwick's rhetoric may well have carried him away in suggesting that the State has apparently induced the British Gas Council, "in as far as it is responsible for the Gas Industry," to throw in their hand. Also, it was, perhaps, a trifle discourteous of Sir Robert Renwick to refer to the Gas Industry as a dying industry, but maybe will later have cause to eat his words.

EXCESS PROFITS TAX

AN interesting and important judgment was given in the High Court by Mr. Justice MacNaghten on Mar. 18, in the case of the Inland Revenue *v.* the Great Wigston Gas Company. The Gas Company was supported by the British Gas Council.

For the purpose of computing liability for Excess Profits Tax the Company selected as their standard year the financial year 1936. In that year the Company was working under the depreciation agreement negotiated in 1912, whereby no annual wear and tear allowances were claimed for plant and machinery other than gasholders, meters, stoves, and cookers. In lieu of annual wear-and-tear allowances the agreement permitted the cost of renewals to be claimed as and when such costs were incurred. In fact no renewals were claimed for the year 1936. In 1941 the National Gas Council negotiated a new depreciation agreement with the Inland Revenue which permitted undertakings to claim annual wear and tear allowances in respect of all plant and machinery at agreed rates. The Great Wigston Gas Company adopted this agreement, and deducted the aggregate of the annual allowances authorized by the agreement in the chargeable accounting periods 1940, 1941, and 1942.

The Inspector of Taxes contended that, in arriving at the amount of the standard profits to be deducted for the year 1940 and subsequent years, the new wear and tear agreement must be deemed to have been in operation from the commencement of the Standard Period. In other words the Revenue claimed that in order that the Standard Profit and the chargeable profit should be calculated on a like basis, deductions should be

made in the Standard Period which were notional, no such deductions having in fact been made. On the other hand, the Gas Company contended that although annual wear and tear at the 1941 rates had been deducted in the chargeable period, it was not necessary for any adjustment to be made in the standard figures. In the Company's view there was nothing in the Income Tax Act or any of the Finance Acts to compel them to deduct wear and tear allowances which they had not actually received.

In the hearing before the Special Commissioners of Inland Revenue the contention of the Gas Company was upheld. On the appeal of the Revenue to the High Court the decision of the Commissioners has been affirmed. It is not yet known whether the Inland Revenue will take the case to the Court of Appeal.

INDIVIDUALITY

LEADERS of industry and labour have been told that the country can survive the dangerous period that lies immediately ahead only if production is raised to and maintained at the maximum. Meanwhile, shortage of manpower is holding up the output of gas appliances, and is likely to affect results for some time to come. No effort, however, is being spared by the manufacturers in preparing to meet all demands when in due time labour is available, and in that respect the speech of Mr. J. F. Davies, Chairman of Radiation Ltd., is distinctly encouraging. Research work which before the war was largely confined to investigations of an *ad hoc* nature is being extended to fundamental problems of combustion and heat transmission. University departments specializing in fuel problems have been asked to review the state of knowledge regarding gaseous combustion, and the Gas Industry has been invited to use every endeavour to stimulate such activities. In developing new products Radiation Ltd. have had well in mind the needs of the housewife for apparatus of the highest utility—utility in its dictionary sense, and not as misused in wartime—with maximum labour saving, and special attention has been paid to post-war housing problems, and not least that of securing a flow of warmth through the house with practically the same overall heat expenditure as when only one room is heated.

Although, as Mr. Davies said, there may in the future be some curbing of individualism and an increase of co-operative efforts, there is no need for individuality to be lost in machine-like standardization. In the sphere of fundamental research there are unlimited possibilities for full and frank co-operation which should result in great rewards, both moral and material, for the Industry. There has been ample evidence in recent months—as example in the work emanating from Watson House—of the readiness of the Gas Industry to co-operate in the efforts of the appliance makers to raise still higher the standard of gas utilization; and the prospects outlined by Mr. Davies, despite the present handicaps and uncertainties, will help to maintain that enthusiasm among workers in the Industry of which we have heard a good deal at annual meetings of gas companies this year.

Less Coal Mined

The production of mined coal in the four weeks to Feb. 23 averaged 3,497,900 tons a week. In February of last year the average weekly output was 3,577,700, or nearly 80,000 tons a week more than last month; the labour force has increased by 1,500; voluntary absenteeism during February of this year was definitely higher than in the corresponding month of 1945, particularly among the men at the coal face; involuntary absenteeism was much the same. The overall figure for absenteeism in February was 18.58%, compared with 16.40% in February of last year. Open cast coal production shows a drop of 6,500 tons in February compared with the comparable period in 1945.

A Scheme of Extensions at the Oswald Street works has been submitted by the Burnley Gas Committee to the Town Council for approval in principle. The object is to increase the capacity of the works to meet present and future requirements. The estimated cost of the work is £239,450, based on present-day prices. Before tenders are invited the scheme is to be submitted to the Ministry of Fuel and Power for approval.

Personal

Mr. R. H. POWELL, of Griffin & Tatlock, Ltd., has been appointed Convener of the Technical Committee of the British Laboratory Ware Association in succession to Mr. S. J. DAVIES, who has retired after three years' service.

* * *

Mr. W. P. MITCHELL, Assistant Manager at Troon, has been appointed Engineer and Manager of the Newport (Dundee) Gas Department. Educated at Glasgow, Mr. Mitchell has held appointments at Johnstone, Motherwell and Wishaw, Aberdeen, and Ayr.

* * *

On leaving Hyde to take up his new appointment as Engineer and Manager of the Wath, Bolton, and Thurnscoe Gas Board, Mr. S. H. STOKES, Assistant Engineer and Manager of the North Cheshire and District Gas Company, was, with Mrs. Stokes, the recipient of a presentation at the Hyde showrooms on Mar. 15. The presentation was made by Mr. J. Wilson, General Manager.

* * *

For purposes of centralized control the Leyland Gas Company and the Ormskirk District Gas Company have been formed into the Leyland-Ormskirk Group of Gas Companies, with head offices at Aughton Street, Ormskirk. Consequent upon this change the following appointments have been made: J. CASTLE, Engineer and General Manager; S. ASHWORTH, Resident Engineer, Leyland; P. H. J. PRICE, Resident Engineer, Ormskirk; J. E. FUNK, Distribution Superintendent; F. DAWSON, Assistant Distribution Superintendent; E. FORD, Sales Manager. In future all correspondence, whether relating to either the Leyland or the Ormskirk Company, should be addressed to Ormskirk.

* * *

Dr. A. B. BADGER, M.A. (London), has been appointed Manager of the Federation of Gas Employers. He will join the Federation on April 1, and take over from Colonel S. S. Ogilvie, the present Manager, on July 1, 1946. Dr. Badger was educated at the Universities of London and Hamburg. He spent two years lecturing at Technical Schools and Colleges in Swindon, Sheerness, and London, and thereafter was appointed as University Lecturer to the Universities of London and Hamburg. He did a great deal of public lecturing, and has a number of publications to his credit. He left university lecturing to take up administrative duties as Director of Studies of a Commercial College in London. At the beginning of the war he entered the Ministry of Labour as First Class Officer, to deal with manpower problems. As the only Deferments Officer of the Middlesex Manpower Board (Ministry of Labour and National Service), he was responsible to his colleagues on the Board for the deferment recommendations and decisions regarding those male employees coming within the purview of both the National Service Acts and the Manpower Board throughout the prescribed area, roughly coincident with the Middlesex County area, one of the most highly concentrated industrialized districts in the country. Negotiations with employers, with the Trades Unions, and with the shop steward movement were an essential feature of this important and responsible work. From the Ministry of Labour Dr. Badger was appointed Establishment Officer of the Middlesex County Council, which has over 32,000 employees in its service. Not the least important part of his work in this capacity has been protracted negotiations with the Trades Unions concerned on wages structures and general conditions of service in respect of employees who come within the jurisdiction of the two Staff Consultative Committees set up by the Council and of the Council's Officers and Staff Committee, involving the great majority of the Council's employees.

Letter to the Editor

Utilization of Waste Heat in the Carbonizing Industries

DEAR SIR,—The above Paper before the Institute of Fuel, abstracted in the "GAS JOURNAL" of March 13, states: "No attempt has yet been made to pre-heat, by heat recovery, the primary air required for the producers of gas-retort settings." In the interest of historic accuracy and for the benefit of the youth of to-day, I must point out that this very feature was part of the continuous vertical retort system, with which I was connected from 1911 onwards, the primary air being saturated with water vapour during its pre-heating by heat recovery in metal recuperators, and thus was clinker formation reduced.

Moreover this additional recuperation had a two-fold purpose: (*a*) fuel efficiency, (*b*) discharge of cooler coke. Consumers' carts could receive the coke direct by gravity from the retorts, thereby obviating the loss in revenue due to erosion and breakdown of coke to breeze in the double-handling now universally associated with coke.

43, *Uxbridge Road*,
Hampton-on-Thames.
March 17, 1946.

Yours faithfully,
H. J. TOOGOOD.

London Juniors' Convention

An Institution meeting in miniature—and not very miniature at that—sums up the Convention held last Saturday by the London and Southern District Junior Gas Association at Gas Industry House. It was an ambitious effort on the part of the President and Council to arrange so soon after the end of the war and with many members still away a full day's programme of six sessions, and the sustained interest, from the overnight reception at Caxton Hall to the final cup of tea, justified all the energy that went into the arrangements.

Colonel C. M. Croft, President of the Institution of Gas Engineers, gave the Convention his blessing and took part in the discussion on education and training. His only criticism was that it took some of the sunshine from the summer meeting of the Institution, particularly in regard to Mr. Stirling Everard's Paper on "Load Factor and Gas Pricing," a subject on which the Institution had tried to get a Paper, but had failed to find anyone so brave as Mr. Everard.

The Convention opened and closed with combined sessions, B. W. Dawkins and R. N. LeFevre opening a discussion in the morning on "Education and Training," and S. Everard giving his Paper in the afternoon. Between the two combined sessions the members divided into two groups—Gas Production and Gas Utilization—each of which held two sessions. While the "producers" were discussing a Paper by F. J. Dent and L. A. Moignard on "The Catalytic Synthesis of Methane for Gas Enrichment" the "utilizers" dealt with a Paper by J. E. Davis on "Gas Service and Gas Quality." A buffet lunch marked the break between the morning and afternoon, when W. L. Boon presented the Production Group with a comprehensive Paper on "Preparation of Coke for the Domestic Market," and the Utilization Group discussed a Paper by T. V. Garrud and A. E. Tyrrell on "Industrial Gas in War and Peace." Meanwhile, the ladies, who had thoroughly enjoyed the dancing on Friday evening, were the guests of the Women's Gas Council for a film show and a talk on the W.G.C., and ultimately they joined with the Convention members for tea. The reception at Caxton Hall gave the reigning President and Mrs. Andrew the opportunity of joining with the four wartime Presidents and their ladies in welcoming not only a large attendance of members and their guests, but many of the leaders of the Industry. It was a disappointment that Mr. A. E. Sylvester, Chairman of the British Gas Council, was prevented by illness from attending, but a cordial welcome was given to Mr. F. M. Birks, Managing Director of the Gas Light and Coke Company, and Mrs. Birks, as the guests of honour.

As Mr. Andrew remarked at the opening of the Convention, the programme represented a very good cross section of the Gas Industry's current problems, and his prediction that it would mark a milestone in their career was fulfilled.

A Wartime Record

We have read with very much interest an account of the wartime experiences of the Tottenham and District Gas Company—a report prepared for strictly limited circulation and illustrated with very fine photographs. It is not unique in the sense that the Tottenham area suffered more severely from enemy action than other areas in the London district, but it does show so very clearly how well prepared the Company was, before the war started, for possible effects from aerial attack. Help was afforded to several neighbouring undertakings from the first blitz of 1940 until the last troubles of 1944/45. This document of which we are speaking was prepared for the Directors of the Company, and for those members of the staff who were concerned in making preparations and in carrying out emergency measures. It is a very human document, from which we quote the following:

"Early one morning during the 1940/41 blitz in the grey half-light of dawn the West Green Depot Inspector and his squad, after a busy night, arrived at their last incident. Going up a passage-way leading to a damaged factory they were horrified to see a naked female body with a length of iron piping penetrating her chest; a few paces further on were arms, legs, and severed heads in profusion. On closer examination it was found with relief that they were all of wax, as the factory manufactured artistic models."

And again: "On one occasion at a serious incident on a very dark night a man in shirt sleeves appeared and offered a dead chicken to one of the repair squad, with the remark that it would do for the pot. The chicken, a very large White Leghorn, was thrust into the back of the van and soon forgotten as the men set to work cutting off services. About half-an-hour later the service layer sent one of his labourers back to the van for some tools. Presently he returned, without the tools but with a scared look on his face, muttering something about a ghost in the van. What ghost? he was asked. The ghost of the chicken, he replied. He was led back to the van to investigate, and there sure enough was the chicken, cackling and flapping its wings. Apparently it had not been killed but merely stunned by the explosion. Later in the morning, having been taken back to the depot, warmed and fed with some scraps, she laid an egg."

From the Zuyder Zee

It was the privilege of Radiation Ltd. recently to show the Chief Home Economist, Miss H. Halverhout, of the Amsterdam Municipal Gas and Electricity Works, the "New World" post-war kitchens and latest gas appliances. Miss Halverhout was in this country to collect information for her Company on developments in the use of gas and gas apparatus, and was keenly interested in the Gas Industry's "ways and means" during the war and in the new developments for the post-war period.

She was careful to explain that Dutch architects would not take too kindly to unit kitchens; that Dutch housewives do not grill their dishes, and that a large amount of baking is done in bakeries, not in the homes. She was most interested in the Regulo automatic oven-heat control. At present Dutch gas cookers have no oven thermostat, and Miss Halverhout hopes to be able to include in her lectures to consumers the advantages of oven-heat control by the Regulo.

To show her "New World" appliances in use she was taken to see a works and office canteen which feeds a staff of over 1,000 every day. Miss Halverhout was invited to have lunch, and joining the queue she made her choice from a menu which had two alternatives to each course. Her enjoyment and pleasure were obvious, saddened perhaps by the memory of Rotterdam on V.J. day, when the Dutch people, celebrating a great victory, had so little to eat.

Preparing for Nationalization

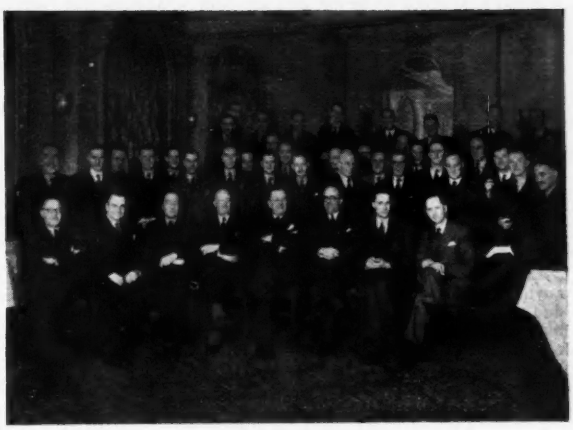
Because the Government will probably take over the plant of Lancashire Foundry Coke Company, the firm has given notice to the Accrington District Gas and Water Board to terminate an agreement under which the Board receives bulk supplies of gas. Supplies, however, will still be available.

Reporting on a joint conference, the Clerk (Mr. P. D. Wadsworth) stated at the Board Meeting on Feb. 28 that Mr. MacAlpine (of the Foundry Coke Company) had said his Directors felt existing agreements should be terminated so that the Government would have a free hand when it took over. The Company contemplated carrying out extensions to afford the supply Accrington required, but he doubted whether it could carry on these without Government approval.

When the Board representatives suggested a pact under which supplies could be given in the expectation that the Government would agree, Mr. G. Barlow said the Government had made it clear it was not prepared to recognize any agreements made after the date of the last General Election.

Mr. Wadsworth said it was suggested there should be a joint approach to the Ministry of Fuel. The Board could then outline its case, and the company put forward the extension proposals as a result of which the Board would probably get 4,000,000 cu.ft. of gas per day instead of 2,250,000 cu.ft.

Ald. R. I. Constantine said the conference was friendly, and he thought they could rest assured the Board's supplies of gas would be safeguarded.



During February, at the Midland Hotel, Birmingham, several Directors of the Parkinson Stove Co., Ltd., entertained the Management to dinner and a concert. The purpose of this reunion was further to cement the good feeling between the Sales, Production, and all Departmental Heads, to ensure a fully co-operative effort in a production drive for adequate supplies of cookers in connexion with new housing schemes.

Ministry of Fuel and Power Staff

The Minister of Fuel and Power, replying to a question, has stated that the total number of staff employed by the Mines Department on June 11, 1942, when the Ministry of Fuel and Power was set up, was 1,522; at the same date, the Ministry absorbed the Petroleum Department and the Gas and Electricity Division of the Board of Trade, numbering a further 2,545: 4,067 in all. The total number employed by the Ministry at February 1, 1946, including the Directorate of Open-cast Coal Production, was 8,338, and the total cost of administration for the year 1945 was £2,750,000.

Institute of Management

Last November a committee under the chairmanship of Sir Clive Baillieu, President of the Federation of British Industries, was set up to consider the establishment of a British Institute of Management as a provisional body. The committee has now published its report and has suggested the setting up of a British Institute of Management, the functions of which would be to provide a centre for the study of management, to carry out research and to disseminate information on the subject of management, to encourage and advise on schemes of training in management, to work in close co-operation with those existing management bodies which are effective in their own specialist fields, and, generally, to take all possible steps to assist in raising the standards of management practice in this country.

The President of the Board of Trade, Sir Stafford Cripps, has expressed himself as being in full agreement with the general recommendations of the Committee, and the Chancellor of the Exchequer has agreed that, to ensure a favourable start for the Institute, contributions from members and from industry shall, as necessary, be supplemented by an initial grant not to exceed £150,000 over five years, this money to be provided from public funds subject to its being voted by Parliament year by year. After that time the Institute will have to be self-supporting.

Release of Government Scientists for Industry

During the war the Ministries of Supply and of Aircraft Production drew heavily on the total scientific manpower of the country for their research establishments. The universities, the teaching profession, and industry contributed many of their best men to assist in the evolution and improvement at maximum speed of weapons and aircraft, with all their associated equipment. A good proportion of the annual outflow from universities and colleges was also absorbed on this work. At the peak, the staffs had reached a size considerably above their peacetime level. Many of the staff have already returned to their former posts, but fundamental and industrial research and teaching are still short of scientific personnel. Further large reductions are now being made at the research establishments of the Ministries, and this will effect the necessary adjustment between their own staffs and those required elsewhere for the ever-widening field of research work vital to the country's everyday life. Concurrently with these reductions, the Ministries are reorganizing their staffs on the lines of the Government's plan for the Scientific Civil Service. The result will be the formation of a strong body of highly-qualified scientists engaged in research on armament, aeronautics, and the civil branches of the Ministries' activities.

Shortage of Skilled Workers

The bottleneck of labour scarcity in the light castings industry continues to have a serious effect on the output of a wide range of equipment needed for the housing drive, including cooking appliances, baths, stoves, fire grates, and similar equipment. No immediate solution to the problem is seen in the Falkirk area, main centre of this industry, where a recent report of the Falkirk Trades Council indicated that the entire unemployed population in the town could be absorbed by the industry but for the fact that they are in many instances unfit for the work.

Labour is not returning to the moulding section of the industry at anything like the level required to bring the output to desired levels, due undoubtedly to the fact that the work is heavy and demands a high standard of physique and ability. High wages can be made equally well in present conditions in industries which make lesser demands on the workers.

To meet this problem a training scheme has been established whereby men are being trained intensively in three months to perform the less arduous and less complex duties, while apprentice trainees are being brought in on favourable terms to assist in the process of obtaining the maximum level of production in as short a period as possible.

While there is a limit to the extent to which mechanization can be adopted, it is being pressed forward as fast as can be done to assist in this acutely limited labour position. Mechanization cannot entirely take the place of the skilled moulder, but present conditions will increasingly insist on mechanization of methods.

Diary

Mar. 28.—Midland Association of Gas Engineers and Managers: Annual General Meeting, King Edward House, New Street, Birmingham, 2.30 p.m.

April 4.—Midland Junior Gas Association: "The Post-War Transition," J. K. Mitchell (Dudley).

April 5.—North of England Gas Managers' Association: Informal Meeting to inspect a 3-million cu.ft. welded spiral gasholder in course of construction at South Gosforth, Newcastle-on-Tyne. Bus leaves Central Station at 2.30 p.m.

April 6.—Scottish Junior Gas Association (Eastern District): Short Paper Day at Dunfermline.

April 9.—Joint Consultative Committee (Domestic Development Committee and Society of British Gas Industries): Gas Industry House, 10.30 a.m.

April 10.—Domestic Development Committee: Gas Industry House, 10.30 a.m.

April 10.—London and Southern District Junior Gas Association: Visit to Watson House.

April 10.—North-Western Fuel Luncheon Club: "Research in the Fuel Industry," Dr. E. V. Evans, Engineers' Club, Albert Square, Manchester, 12.30 for 12.45 p.m.

April 12.—Institution of Chemical Engineers: 24th Annual Corporate Meeting, Connaught Rooms, W.C. 2, 11 a.m.; Presidential Address, Hugh Griffiths, 12 noon; Luncheon, 1 p.m.

April 12.—North British Association of Gas Managers: Spring Meeting, Lesser Town Hall, Coatbridge, 10.30 a.m. Presidential Address, Mr. T. S. Lockhart, Rothesay.

April 17.—Industrial Gas Centres Committee: Gas Industry House, 10 a.m.

The Temporary Address of the Colonial Gas Association is now 12, Grand Parade, Hove, 3, Sussex. The telephone number, Hove 5184, remains unchanged.

Commencing with the 1947 Examinations, the syllabus for the Diploma Examination in Gas Engineering (Supply) of the Institution of Gas Engineers, as detailed on page 50 of the Education Regulations (1945 Revision: Communication 275 of the Institution of Gas Engineers) is to be augmented to include the following: "Coke.—General considerations on the properties and grades of coke for the market. Utilization of coke for: (*a*) Domestic purposes, (*b*) Industrial purposes, (*c*) Road traction. Comparison with other fuels from an economic point of view."

Gas in Sheffield Industries

The Industrial Gas Centres Committee met at Sheffield on Mar. 6-7 at the invitation of Mr. Ralph Halkett, General Manager and Chief Engineer of the Sheffield and District Gas Company. The members were the guests of the Company at luncheon after their meeting on Mar. 6, and the rest of the time was spent in visiting Sheffield industries.

This photograph was taken at the works of Firth-Vickers Stainless Steels, Ltd., where large quantities of gas are used, and shows (left to right): Mr. W. R. Oliver, Public Relations Officer of the Sheffield Gas Company; Mr. H. R. Hems, Chairman of the Industrial Gas Centres Committee; Mr. J. Wortley Fawcett, Managing Director of Firth-Vickers Stainless Steels, Ltd.; Mr. W. Dieterichs, Manager of Watson House; and Mr. F. G. Pyper, Deputy Engineer (Construction), Sheffield Gas Company.

Removal of Sulphur Compounds from Town Gas by Catalytic Hydrogenation

By E. B. MAXTED, D.Sc., and J. J. PRIESTLEY, M.Sc. (W. C. Holmes & Co., Ltd.)

(*Continued from p. 482*)

Operation

To start up—

1. Air is purged from the plant by cracking the inlet valve and opening a cock on the outlet main. After purging the cock is closed.
2. Air blower started and burner lit.
3. Kent controller started operating on temperatures of gas at the top of the converter (originally designed as an alternative control point to the catalyst bed temperature) and set at 250°C.
4. Circulation pumps started and Arca regulator started.
5. Gas turned to plant when the temperature of the head of the converter reaches 250°C. approximately. Kent controller switched on to control thermocouple in catalyst bed.

Starting from cold, approximately 1,500/2,000 cu.ft. of fuel gas is required to bring the catalyst to working temperature. The time taken is about 9 to 12 hours. With copper thiomolybdate catalyst the hydrogen oxygen reaction commences about 180°C.

To shut down—

1. Burner extinguished.
2. Plant by-passed.
3. Circulation pump stopped and Arca regulator shut off.
4. Kent controller shut off.
5. Air blower shut off.

After starting up it was usually found that the plant required virtually no attention. For the first six months of operation a shift operator was employed, but in April of last year this was discontinued as being unnecessary. Readings of throughputs, gas and electricity consumption were taken each day. A 24-hour record of the catalyst temperature was obtained from the Kent controller. Other readings were taken at frequent intervals.

Daily tests were made for sulphur compounds in the untreated gas, gas outlet catch box and district gas. Orsat analyses were done for the determination of the oxygen content at the inlet and outlet of the converter.

At times, when the oxygen content of the gas was found to be on the high side, it was found possible to extinguish the external heating burners altogether. Out of the 225 days' operation of the plant, the burner was in action for 130.

In the early days it was the customary practice to fill up the plant with a new or a regenerated batch of catalyst, and operate with this until the sulphur compounds in the outlet gas began to rise. Recently we have found it better to feed the catalyst through the plant in a semi-continuous manner. The method at present used is to discharge about 25 lb. of fouled catalyst per day from the lower discharge cock. A surplus of regenerated catalyst is maintained in the top bunker, which automatically feeds the same quantities of catalyst into the catalyst basket.

Generally speaking the operation of the CSR plant involved very little alteration to the usual gas-works routine beyond a closer control of the ways in which oxygen is allowed to enter the gas stream. At Mirfield some changes had to be made, mainly of a minor nature, though on a larger works, with more technical supervision available, this would not be required.

Oxygen Control.

Although the design of the Mirfield plant enables gas with large variations of oxygen content to be treated, better results are obtained when this can be maintained at a reasonably constant figure. The average oxygen content at Mirfield at inlet of CSR plant was 1.1%, but experiment has proved that external heating could still be dispensed with at a figure of .9%. The factor determining the quantity of oxygen in the gas at Mirfield was the state of the main oxide purifier, and the operation of these purifiers was not eased by the poor quality of some war-time oxide, shortage of labour and big variations from hour to hour in the rate of crude coke oven gas supplies. On average make figures and with new or nearly new oxide, the oxygen content could be maintained at .8%. On the other hand, at periods of high throughput, particularly in cold weather, and when partially spent oxide was being worked up to around 50% sulphur, the oxygen had to be increased, and at the inlet CSR plant rose to 1.3%. It is important, however, to note that at no time was the oxygen content in the gas adjusted for the convenience of operating the CSR plant.

In addition to what might be termed the base line oxygen content dictated by the requirements of the main purifiers, there were, in addition, times when accidental or occasional increases occurred. It will be realized that low oxygen content has no disadvantage, but that an excessive oxygen content will, by overheating the catalyst bed, bring the safety by-pass into operation. This should be avoided if possible. Below is a list of causes of occasional excessive oxygen content actually experienced:

1. Variation of vacuum in retort house with accidental unsealing of dip pipes.
2. Light seals in retort house during "rounds."
3. Sudden variation in proportion of horizontal retort gas and crude coke oven gas.
4. Putting a recently filled purifier back into circuit.

Catch Box

The catch box which was existing is 15 ft. by 30 ft., and originally contained one layer of oxide 15 in. thick, a total weight of 20 tons of oxide. At the end of the first run H_2S was slipping, so the box was emptied and the old oxide mixed with some partly used oxide and the plant started up again. Since that time a considerable amount of information has been obtained on the catch-box performance, and some ideas obtained as to what will be required in the future.

One of the early modifications made was to divide the box into two halves by a 9-in. brick wall fitted with a central chimney so that the gas passed through two layers in series. A small quantity of air was blown into the gas stream at the inlet catch box to allow for revivification *in situ*. Addition of air was necessary as, within the limits of Orsat analyses, the whole of the oxygen is removed by the catalyst during its passage through the converter. The quantity of air blown into the catch box was such that the oxygen content of the gas was 0.4%. It is possible that there is some limiting percentage of oxygen below which it is relatively ineffective in promoting revivification, and it is possible that 0.4% is somewhere near the critical figure. At the end of the longer runs totalling some 65 days each, slight stains were obtained at the outlet catch box. It is interesting to note, however, that more recently during shut-down a similar stain has been observed when in fact no H_2S was being supplied at the inlet. This would suggest that there may be a possibility of bacteriological action giving rise to the formation of H_2S. This is a problem upon which further work is being carried out.

During the experimental period advantage was taken of a newly-patented process for the removal of H_2S by liquid means, so in order to remove a portion of the load from the catch box, the cooling liquid used in the final cooler was replaced by an alkaline suspension of ferric hydroxide which assisted materially in prolonging the active life of the catch box.

Catalyst Performance

The catalyst used throughout the tests was copper thiomolybdate mounted on bauxite size ¼-in. to ⅛-in. mesh. A full charge for the plant consists of 14 cu.ft., of which 10 are in the active zone in the annulus. When first the plant was put to work the method used was to insert a fresh batch of catalyst and run this until the sulphur compounds in the outlet gas rose to 10/12 grains per 100 cu.ft.—usually a period of about 45 days. At the end of such a period, the whole of the catalyst charged would be dropped out and a fresh one inserted.

More recently we have, as described earlier, found considerable advantage in working the catalyst through the plant in a semi-continuous manner. This is carried out by withdrawing a small portion per week, or even per day. Under these conditions the average rate of catalyst throughput was 3.0 cu.ft. per week.

A total of three batches, that is, 45 cu.ft. total of catalyst, has been used at Mirfield; all has been regenerated twice, and now catalyst is being charged which has had its third regeneration. New catalyst appears to give slightly lower figures for sulphur at the outlet of the plant than regenerated catalyst. Figures for new and regenerated catalyst operation are given in Table No. 2.

TABLE II.—Sulphur Compounds in Gas Inlet and Outlet CSR Plant and on District; Monthly Averages.

Period.	Catalyst.	Inlet CSR grains/100 cu.ft.	Outlet CSR grains/100 cu.ft.	District grains/100 cu.ft. after partial benzole stripping.
1944.				
Oct.	New Batch No. 1	22.6	6.5	3.4
Nov.	" " No. 1	22.0	7.8	4.8
Dec.	" " No. 1	36.4	9.3	5.4
1945.				
Feb.	" " No. 2	24.0	8.6	4.6
April	" " No. 3	27.2	8.2	4.7
May	Regenerated	29.6	10.9	6.9
June	"	27.7	10.1	4.5
August	"	28.2	11.2	8.3 *
Sept.	"	27.3	10.8	6.2

* Benzole plant off part of month.

It has been found that provided the catalyst temperature does not drop below 360°C., very close control of the catalyst temperature is not required. If, however, the temperature drops below 360°C. there is a falling-off in the sulphur reduction. This is illustrated in fig. 12, which was obtained from numerous results obtained on the

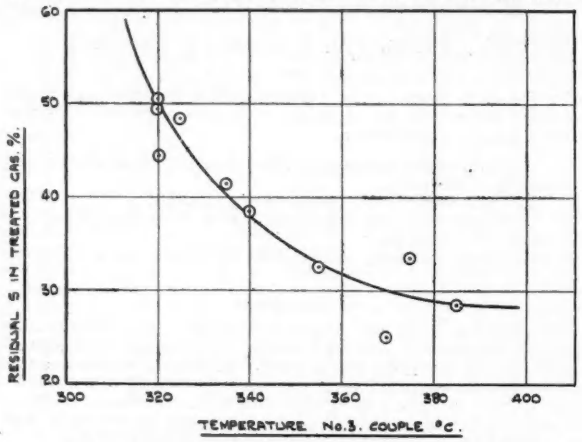


FIG. 12.—*Graph showing influence of temperature of catalyst on sulphur removal. June* 30, 1945.

plant. It is preferable not to allow the temperature to rise too high—say greater than 385°C.—as, although this tends to decrease slightly the percentage of unconverted sulphur compounds, the rate of carbon accumulation is increased. It is known that the rate of carbon accumulation increases rapidly with temperatures above 300°C.

On the Mirfield plant as designed, there may be some slight rise in the outlet sulphur compounds proportional with gas throughput, but other variations, for instance, the composition and amount of the sulphur compounds entering the plant and the variations of catalyst temperature, are sufficient to make this rather doubtful. On the whole there is little difference in the results whether the plant is handling, say, 8,000 or 25,000 cu.ft. of gas per hour.

Catalyst is discharged having a carbon content averaging 10%.

Combustion of some of the hydrogen in the gas with the oxygen also present in the gas takes place on the catalyst surface. Many analyses have shown that virtually the whole of the oxygen is removed. With new catalyst the hydrogen-oxygen reaction usually takes place in the first 2 in. of the catalyst bed, the reaction being more diffuse with regenerated catalyst.

The same Table II shows figures obtained on the district, which include a further reduction in sulphur compounds by the benzole plant, due mainly to thiophene removal. Thiophene is difficult to destroy, and about 85/90% of it survives passage through the converter. During the period covered by the tests, the recovery of benzole was 2.39 gall. per ton of coal carbonized. This figure, and consequently the sulphur removal figure, is lower than one would expect on normal gas-works operation, as it should be remembered that at Mirfield there is a considerable addition to the gas stream of stripped coke oven gas. The stripping of the coke oven gas is illustrated by the fact that the average benzole recovery at the coke ovens of the same period was 3.05 gall. per ton. The sulphur content of the crude benzole produced at Mirfield was reduced as a consequence of CSR operation from 1.2% to 0.62%. Laboratory tests showed that by a more intensive oil washing, a further reduction of 2 to 3 grains of sulphur per 100 cu.ft. could be achieved.

For several days the plant was operated on a gas containing 25 grains of H_2S per 100 cu.ft. on the inlet. This addition had no visible effect on the sulphur compounds removal in the plant, being less than the normal day-to-day variations obtained.

Since the installation of the oil-washing plant in 1934, gum has been virtually absent from the Mirfield district, therefore it is difficult to assess the CSR plant from a gum-removing point of view. One observation may, however, be made. Before the CSR plant was installed, a light fluffy gum deposit collected on the injector nozzle of gas fires in the offices, and was removed about once per six months. Since the plant went to work no deposit has been observed.

The back pressure thrown by the CSR plant operating at 21,000 cu.ft. of gas per hour, inclusive of the washer cooler, was 2.0 in. water gauge. The butterfly valve when closed threw $\frac{3}{8}$ in. water gauge, and the catalyst bed 0.6 in. water gauge.

Thermal Efficiency of Plant

In fig. 13 are given figures which relate to usual conditions on the plant. It will be observed that the quantity of heat evolved in the catalyst bed due to the hydrogen-oxygen reaction is larger than the quantity of heat evolved from the combustion of fuel gas in the external combustion chamber. It is clear from these figures that the primary object of the external combustion chamber is to provide a margin for operation, and to make up for deficiencies in the oxygen content of the gas. With a steady and consistent oxygen percentage of 0.8% or over the burner can be extinguished. The cold gas by-pass on the other hand smooths out the effects of too high an oxygen content of the gas. Given steady oxygen conditions, this does not normally come into operation. When the cold gas by-pass

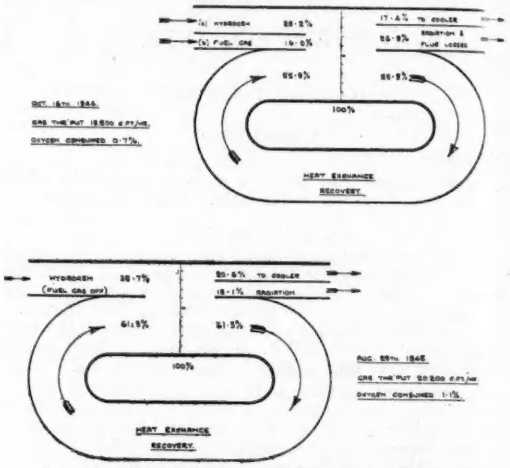


FIG. 13.—*Heat balances on C.S.R. plant. Diagrams showing typical conditions.*

does come into operation, heat is in effect "thrown away"; in other words we have to make a condition of deliberate inefficiency in order to compensate for an excess of heat coming forward which otherwise would damage the plant. The true function therefore of the cold gas by-pass and the burner is to allow for a wide variation of the oxygen content of the gas being treated. The steadier the oxygen content can be maintained, the more likely is the plant to be more thermally efficient than otherwise.

An experiment was tried covering a period of three days, in which a determination was made of the amount of external fuel gas required to keep the converter hot without actually passing gas through it. This amounted to 58.4 cu.ft. of gas per hour, or 29,200 B.Th.U. per hour.

Attention is drawn at this point to the fact that the plant stands in the open, and is not housed in any way. The radiation losses on these figures amount to 145 B.Th.U. per sq.ft. per hour.

When the burner is in operation the combustion is extremely efficient, and the flue gases leave the combustion chamber at a temperature slightly above the dew point. When the burner is not in action the combustion chamber acts as an insulating space, and the efficiency of this is being increased by arrangements to close the flue outlet, thereby diminishing convection currents, and the currents induced by wind.

Cost of Operation

The actual cost of operating the process has been obtained from data collected on 225 days of operation. Table III gives the actual expenditure involved, and the second column the figures calculated up to a year's working of 365 days.

TABLE III.—COST OF PROCESS.

This cost is based on results obtained in 225 days' operation, in which 96,771,000 cu.ft. of gas were treated. The cost per annum is calculated out on an annual make of 150 million cu.ft. in a year of 365 days. Charges are proportional to time except fuel gas used and hydrogen consumed, which are proportional to gas volume treated.

	On actual working period.	Calculated per annum.	%
Interest and depreciation on £4,000 at 10%	£247.0	£400.0	53.4
Fuel gas consumed 240,000 cu.ft. (1,200 therms at 3½d./therm)	17.5	27.1	3.65
Hydrogen consumed, average O_2 used = 1.1%, H_2 used = 2.2%—*i.e.*, therms at 3½d./therm, 5,740.)	83.8	131.1	17.5
Electricity, 7,800 KwH at ½d. per KwH	16.3	26.4	3.55
Water, 60 gall./hr. at 3d./1,000 gall.	4.2	6.8	0.9
Labour: (*a*) 2 hours/day on CSR plant, at 2s. per hour	45.0	73.0	9.75
(*b*) emptying catch box twice a year	7.4	12.0	1.6
Regeneration of catalyst (all included)	19.7	32.0	4.3
Catalyst replacement, say one-third of one charge/annum	25.0	40.0	5.35
Total	£465.9	£748.4	100.0

Cost of treating 150 million cu.ft. or 750,000 therms = £748.4.

$$\text{Cost/therm} = \frac{748.4 \times 240}{750{,}000}$$

$$= 0.239\text{d.}$$

Cost/1,000 cu.ft. = 1.172d.

(To be continued)

COMPANY MEETINGS

Brighton, Hove, and Worthing Gas Company

Mr. FRANK H. JONES, M.Inst.C.E., Deputy Chairman, who presided at the Annual General Meeting of the Brighton, Hove, and Worthing Gas Company, held on Mar. 15 at the offices, 5, Great Winchester Street, London, said: I should first like to explain to you why I am in the chair this afternoon. Our Chairman, Mr. A. M. Paddon, was here yesterday, but is not very well to-day and is unable to be present. He had prepared the following statement on the general position of the Company. I therefore propose to refrain from making any comments myself. I can tell you, however, that the Company is prospering, and we are still getting an increase in business.

Chairman's Review

The following are the remarks which the Chairman of the Company would have addressed to the meeting if he had been able to preside: Dealing primarily with the accounts as presented to you, the first two tables show that the Company has close on £400,000 of unissued capital to meet future requirements of this kind; while the succeeding statements are interesting as indicating that the capital employed, per million cu.ft. of gas sold, stands at the figure of £640, and, if the amount added on conversion is not taken into consideration, at the modest figure of £567 per million.

The revenue account in its more important features discloses an increase in the resultant profit after all appropriate reservations have been made; prominent among these latter the contribution of £10,000 to the renewal fund should be noted, together with important credits of £28,366 to the pension fund and the allotment of £10,169 to the co-partnership fund.

On the credit side of the account an increase of 10.36% in the amount of gas sold is recorded, and an improvement in the receipts from residuals of £13,567, the aggregated amount so received representing 47% of the raw materials employed, which, considering the arbitrary restrictions on the price of the products involved, is a creditable result.

Profit and Loss Account

The profit and loss account, after providing the increased dividend and the other necessary adjustments, shows an increase in the balance carried to the next account of £6,724, bringing the total to over £24,000. The following entries—namely, the reserve, special purposes, and renewal funds—call for attention in existing circumstances. The special purposes and the renewal funds may be regarded as integral elements in the liquid assets of the company to be used, subject to certain statutory prescriptions, in the financial conduct of the undertaking.

The reserve fund is entirely different in its inception and character, being formed exclusively from profits authorized for distribution as dividends to the proprietors, and consisting of amounts which the proprietors have refrained from dividing. Accordingly, the amount carried to the credit of this fund is applicable to no other purpose than the supplementation of dividends falling short of the authorized amounts which the periodical trading results might not be adequate to satisfy.

This fund is, therefore, the perquisite of the proprietors held in trust for them by the administration for the particular purpose described.

There are, also, certain ancillary or domestic funds—namely, the co-partnership fund, which is the indefeasible possession of the co-partners in general, standing at £169,444; a contributory pension fund with a credit of £321,618; and a contributory sick and benefit fund with a balance of over £15,000. The proprietors will realize that in the present disturbed conditions engendered by the prospect of expropriation, the care and protection of these funds engage the close and vigilant attention of the directorate.

Nationalization

In paragraph 6 of the Directors' report reference is made to the menace of nationalization. It is necessarily brief and continent, because while the Government has announced its irrevocable decision to nationalize the Gas Industry, it has not disclosed any information as to how it proposes to implement its purpose. Certain inevitable consequences must issue, unless the Governmental intention is meaningless.

The proprietorate and directorate must be terminated, and it must follow that investments in the company must cease to exist, and the opportunity of future investment be similarly determined. This is an arbitrary and gratuitous deprivation of a valued prerogative of long standing, and of sound advantage to the company and public alike. The interest of the consumers can hardly be consulted by the release of many statutory provisions now existing for their protection.

Public's Poor Exchange

The company is subject to regulative penalties as to the conditions, such as the quality and pressure of the commodity it supplies, while the price of gas is linked with any profit that may be distributed; also the issue of capital and rate of interest are matters of legislative control. These and many other qualifications on behalf of the consumers and the public cannot obtain under Government control, against which there can be no legal process. It would appear, therefore, that any concession or consideration extended to the public could be only gratuitous—a poor exchange for legal rights.

For wellnigh a century this Company has been prominent in promoting practical and administrative efficiency within the Gas Industry. Much of the accepted technical practice now extant has had its genesis within its orbit. Is it conceivable that any benefit can accrue from the arbitrary transfer of an organization the product of unremittent professional and personal skill, as an impersonal and unrecognizable element, into the nebulous volume of Ministerial control? Is it not rather to be anticipated that such a transposition will merely reproduce the deterioration which in the past has invariably attended the supersession of private enterprise? The prospect is dark, and is hardly susceptible of improvement until it is generally recognized that industrial, as well as personal, liberty is essential to national prosperity.

The report and accounts were adopted.

The DEPUTY CHAIRMAN: I propose a vote of thanks to the Staff. You will notice a new face among the officials present to-day, that of Mr. Raymond Prince, our new General Manager. Mr. Percy Browne remains Managing Director.

The resolution, seconded by the Viscount BUCKMASTER, was unanimously adopted, and the proceedings terminated with a cordial vote of thanks to the Deputy Chairman and Directors, coupled with an expression of regret at the absence of the Chairman.

Tottenham and District Gas Company

The Annual Ordinary General Meeting of the Tottenham and District Gas Company was held on Mar. 19 at Woodall House, Lordship Lane, Wood Green, N. 22, the Chairman, Mr. HENRY WOODALL, M.Inst.C.E., presiding.

The **Chairman,** in an address circulated to stockholders, said: For six years I have not been allowed to give you full information about your Company. Restrictions on the disclosure of information have now been removed. I should like first to refer to changes that have been made on the Board of Directors. I was first elected a Director in the year 1911. During that year we sold about 1½ thousand million cu.ft. of gas, our consumers numbered 59,661, and the area supplied by the Company was 16 sq. miles. In 1945 we sold over 6 thousand million cu.ft. of gas to 188,868 consumers over an area of 411 sq. miles. These figures are exclusive of our subsidiary Companies, the Dunstable Gas and Water Company, and the St. Margaret's Gas Company. Now that the war is over, I felt that the time had come when I might reduce some of my work. I therefore asked my colleagues on the Board to accept my resignation as Managing Director. This they did, while at the same time asking me to continue as Chairman of the Board.

We have appointed Colonel Harold C. Smith and Lieutenant-Colonel Edward C. Woodall as Managing Directors. Colonel Smith entered the service of the Company as Superintendent of our Tottenham Works in the year 1920. He was appointed Chief Engineer in 1922, and General Manager in 1943. Later in the meeting you will be asked to confirm Colonel Smith's appointment as a Director of the Company. Lieutenant-Colonel Woodall was called to the Bar in the year 1928, was elected to the Board in 1931, and has served throughout the war with H.M. Forces. Mr. William Hawkyard has been appointed the Company's Chief Engineer. He entered the service of the Company in 1927 as Superintendent of the Tottenham Works, and was appointed Deputy Engineer in 1945.

War Damage

Considerable damage was done to the Company's property during the war years by enemy air attack, but we have many reasons to be thankful that this, serious though it was, was not very much greater. On one occasion a high explosive bomb fell in the middle of our water gas section, completely destroying one of the plants. On the night this happened, however, the plant was not at work, no firing occurred, and the harm done was very much less than it would have been had the plant been in operation. On another occasion a high explosive bomb landed in the middle of some reconstructed purifiers; again this particular plant happened to be out of action. Had the incident occurred two or three days later when the plant was at work the damage must have been much greater.

Several bombs which fell on the works were near misses on important plant, but fortunately did little or no damage. The most serious incident occurred on the night of July 20, 1944, when a flying bomb landed on our Leeside Works, seriously damaging and setting fire to our largest gasholder. This holder has a capacity of 7 million cu.ft. of gas and was about half full when the bomb fell; 3½ million cu.ft. of gas were burned in about five minutes, and it was said to be an awe-inspiring sight by all who saw it. Unfortunately two of our employees who were on fire guard lost their lives as the result of the blast from the flying bomb. The damage caused to the holder necessitated

extensive repairs, which were completed on Sept. 26, 1945, and the holder was again put to work and has worked satisfactorily ever since.

The loss of this holder was most serious, and our engineering staff did not view with any comfort the prospect of supplying gas through the winter without it. They, however, made the best arrangements they possibly could to ensure a constant supply to consumers, and despite all their difficulties were successful in so doing. These difficulties were accentuated on Jan. 7, 1945, when a rocket fell on the Company's property in Kimberley Road, seriously damaging our second largest holder, one of 3½ million cu.ft. capacity. Repairs to this holder are still under way, and we are not likely to have the use of it for some little time to come.

Those familiar with gas practice will realize what this great loss of storage meant. Had we been told this would happen, that our storage at our largest works would be suddenly dropped from 12 million to 1½ million cu.ft., we would have said it would be impossible to carry on. But we did carry on, and successfully—another instance of the wonderful determination shown by all ranks in war-time and the impossibility for British people to accept defeat. You will realize how much we owe to our Managing Director, Colonel Smith, his staff and the workpeople for their share in this indomitable spirit, a spirit as essential in peace as in war.

The Accounts

Turning to the Accounts I think the proprietors will agree that the results are satisfactory. After paying all prior charges, Preference dividends at the fixed rates, Ordinary dividends at the basic rates, and providing for tax on the profits for the year, co-partnership, further provision for war damage contribution, and £80,000 towards the cost of the reconstruction of Ponders End Works, there is a surplus of £3,528 to be added to the carry forward. After writing off the original cost of the C.W.G. Plant displaced, depreciation £52,760, and the receipts in respect of land sold, the expenditure on capital account is reduced by £4,993. Capital expenditure per million cu.ft. of gas sold, excluding investments in associated companies, is now £436, as against £453 for 1944.

We are now paying 56s. 6d. per ton for coal, which in 1938 cost us 25s. 2d. per ton, an increase of 125% above pre-war prices. In September, 1945, there was an increase in wages of 1½d. per hour or 1s. per shift. The increase in coal and wages is not fully reflected in the 1945 Accounts.

The Directors have approved and put into operation a sick pay scheme for the Company's workpeople, as recommended by the National Joint Industrial Council for the Gas Industry, and as soon as sufficient labour becomes available a six shift week will be instituted instead of a seven-shift week as at present.

Sales of gas show a satisfactory increase of 3¾%. As was to be expected following the cessation of hostilities and the consequent decrease in war production, the consumption of gas for industrial purposes began to decline. Use of gas for domestic purposes, however, has more than offset this decrease.

Reconstruction

At the outbreak of war our works were all in excellent condition. Our repairs were well up to date and we had a good margin of reserve plant. During the war we were unable to maintain our plant in a condition such as we should like, but repairs have been put in hand in their regular rotation, and although they have taken longer to execute than normally, I can say that the state of our works and plant is not unsatisfactory.

In addition to maintaining our plant in repair we have been able to carry out construction of new plant. At our Willoughby Lane Works we have constructed a completely modern automatic carburetted water gas plant having a nominal capacity of 2½ million cu.ft. a day. A second plant is in course of construction. At our Southgate Works we are building a new retort bench to make an additional 1 million cu.ft. a day of coal gas, and we have also added to the retort bench at our Hertford Works.

Plans have been prepared and sanction obtained from the Ministry of Fuel and Power for the modernizing of our Ponders End Works. An entirely new works is in course of erection on this site capable of producing 7 million cu.ft. of gas a day. It will be necessary in due course to raise new capital to finance this and other expenditure in connexion with future development.

Nationalization

You will expect me to say something regarding the proposed nationalization of the Gas Industry. Apart from the Heyworth Report we have nothing before us at present to consider, and can only assume that nationalization means the compulsory purchase by the State of your property on terms which you may have little opportunity of discussing and criticizing. It seems to have been assumed by the public that nationalization will automatically result in economies; there is no justification for such an assumption, but if, as your Directors believe, it is wrong, its error can unfortunately only be proved after much damage has been done and the remedy made correspondingly difficult.

We are of the opinion that some form of Statutory control over the Gas Industry is advisable. Such control has existed for over a century, and relates, for example, to the raising of capital, the quality and price of gas, and the dividends paid to the shareholders. Parliament, therefore, already exercises very wide powers. We hope that the Government will realize before it is too late that these are sufficient to prevent any abuse by the Gas Industry of the statutory powers under which it operates, and that the heavy cost and disturbance which nationalization would entail are wholly unjustifiable.

Your Directors do not think that it would be wise to take any direct political action in this matter, but consider that, provided it is clearly understood that the Industry does not approve of nationalization from any point of view, they can best serve your interests by supporting the British Gas Council in its policy of keeping in close touch with the Ministry of Fuel and Power.

With regard to the Heyworth Report, although it has not yet been adopted by the Government, we are, I think, entitled to assume that its main recommendations will form the basis of the nationalization proposals for the Industry. The chief recommendation of the Committee is that we should have larger units and more integration. As I have told you, our area of supply was only 16 square miles in 1911, while to-day it is 411, and similar figures can be quoted for other gas undertakings, showing that private enterprise has justified its existence.

Nationalization might accelerate the grouping or integration of gas undertakings that we know ought to take place, and which would in many cases have become effective had it not been for the ban placed on amalgamations during the war, but this amalgamation or integration could well have been carried out by the Gas Industry itself in the early post-war years if proposals made by the Industry had been accepted by the Government.

Pending further developments we shall continue, as heretofore, to maintain our undertaking in the highest possible state of efficiency.

War Service

During the war 1,114 of the Company's employees served with H.M. Forces. It is with very great regret that I have to report that 43 of these lost their lives in the service of their country. Our deep sympathy goes out to their relatives. Practically the whole of those who remained behind took an active part in the defence of their country, either in the Home Guard, Civil Defence Services, National Fire Service, or as Fire Watchers. Several of the Company's employees both serving with the Forces and at home received awards from H.M. the King and Allied Governments. We are proud that they have been so honoured.

Many have now returned to the service of the Company, and we are looking forward to the time when the remainder are with us once again. We have been in communication with practically all those who were serving with the Forces, and have been very glad to find that most of them wish to return to the service of the Company. We realize that some of these will find difficulty in rehabilitating themselves, not only in their former employment, but in their former living conditions. This applies particularly to those who have been serving away from this country for a considerable time. We shall do our best to make the return to peace-time conditions as easy as we possibly can for them.

Gas Supply

Throughout the war years we have been able to maintain a constant supply of gas of the required quality and at full pressure, except in those cases where damage occurred owing to enemy action. We had to reduce pressures slightly over the district supplied by our Tottenham, Enfield and Southgate Works on two days only during the war years. This small reduction would not have been necessary had it not been for the extreme difficulty caused by the loss of our two largest gasholders. That we have been able to maintain this record is due to the loyalty of the Company's servants and their devotion to duty throughout many dangerous and trying periods.

I feel that I must just utter a word of warning. While we have been able to get through these war years in a way which affords us all a considerable amount of pride, this has only been done with very great difficulty, and on many occasions we have had no margin at all to spare. That has been the case during this last winter owing to delays in repairs to plant and to shortage of labour, over which we have no control. We are ourselves exerting every possible effort to get back to our pre-war standards. This we can only do when we are free to buy the quality of coal that we require for carbonizing, the materials necessary for constructing and repairing our plant and modern appliances for use by consumers.

The report and accounts were adopted, and final dividends for the year ended Dec. 31, 1945, were declared at the rate of 2½% actual on the 5% Preference stock; 2¾% actual on the 5½% Preference stock; and 2½% actual on the Ordinary stock, all less tax.

The appointment of Colonel H. C. Smith as an additional Director was confirmed; Mr. E. J. K. Fussell was re-elected a Director; and Mr. William Cash, jun., the retiring Auditor, was reappointed.

On the proposition of Mr. S. Sandell, seconded by Captain H. F. Wilkinson, the best thanks of the proprietors were given to the Chairman, Directors, and Auditors, and also to the Officers, Staffs, and Workpeople, for their services to the Company during the past year. The vote of thanks was acknowledged by the Chairman and Colonel H. C. Smith.

COMPANY MEETINGS—cont.

Sheffield and District Gas Company

Lieutenant-Colonel Sir HENRY STEPHENSON, Bart., D.S.O., LL.D., J.P., the Chairman, presided at the 146th Ordinary General Meeting of the Sheffield and District Gas Company, held at the Company's offices, Commercial Street, Sheffield.

The **Chairman,** in moving the adoption of the report and accounts, said: I regret to tell you that Mr. R. Halkett, sen., decided to resign his position as General Manager last September, but consented to continue his membership of your Board. I should like to place on record the Board's gratitude for the splendid service Mr. Halkett rendered to your Company during his 26 years' occupation of the post of General Manager. I am sure we are all glad to have him with us to-day, and to congratulate him on his restoration to health after his recent serious illness. Mr. R. Halkett, jun., has been appointed General Manager, and I know he will have your best wishes for his success.

You will appreciate the magnitude of your Company's war effort when I tell you that in the five years 1940 to 1944 inclusive—that is, the five complete war years—your Company sold some 73,000 million cu.ft. of gas, representing an increase over the total for the previous five years of no less than 52%.

The business of the undertaking was carried on during the war years in face of great difficulties. All kinds of materials were in short supply, while the serious shortage of labour was an untold handicap, both as regards ordinary repair work and the actual manufacture of gas; coal supplies were inadequate in quantity and often unsatisfactory in quality. Moreover, the supplies of coke oven gas, upon which your Company depends for the successful operation of the gas grid, were at times so much curtailed as to cause grave anxiety to your directors and the management.

Damage by Enemy Action

Perhaps, however, the greatest difficulties we experienced were due to the extensive damage caused to our works and mains by enemy action, details of which I gave you in my address last March. But in spite of all these obstacles to efficiency during the six years of war, the gas supply never completely failed. Even in the days immediately following the two air raids a supply of gas was maintained, and though naturally this was at first at a reduced rate, in a few days' time normal supplies were available in most areas of the city.

I am sure you will agree that the manner in which these difficulties were overcome reflects the greatest credit on the management and the general body of employees, who never slackened in carrying out their arduous duties, often under dangerous conditions. Before leaving this subject, I would like to express to the 328 employees of the Company who have served in the Forces the Board's appreciation of their contribution towards the successful prosecution of the war.

Turning now to the report and accounts, you will see that the total quantity of gas sold in 1945 was 13,201,545,600 cu.ft., representing a net decrease of 7.164%, as compared with the figures for 1944. It was, of course, to be expected that with the end of the war and the shortening of working hours the demand for industrial gas would decrease, but the call for additional gas furnaces, if it could have been satisfied, would have gone far, if not the whole way, to compensate for this loss.

Unfortunately the coal position has deteriorated continuously throughout the year, and the acute shortage of coal and the consequent reduction in the supply of coke oven gas has caused the Ministry to prohibit our affording any additional supplies, and many would-be consumers have therefore been disappointed.

You will notice that after making the usual provisions and after setting off the balance of £261,000 standing to the credit of the depreciation fund, and after taking into account the nominal amount added on conversion, we are still left with available capital of £33,245. In connexion with this, however, I would point out that certain items of capital expenditure have been included in miscellaneous debtors on the balance-sheet pending final completion. This is mainly in respect of capital expended on property which, when completed, will, we hope, prove to be a valuable addition to the Company's assets and keep it in the forefront of undertakings of this kind.

Dearer Coke Oven Gas

We have had to carbonize less coal, with a corresponding reduction in sales of coke. At the same time, although we have had to take less coke oven gas, the cost of this has increased by £32,625. This is due to the higher price which I indicated in my remarks last year.

Turning to the profit and loss account, I think you will agree that this makes a very satisfactory showing in spite of higher provisions, especially that for the War Damage Contributions Levy, which constitutes an unknown liability as the basis of contribution is not yet finally agreed. The happy position of the reserve fund, the special purposes fund and the benefit fund is apparent, particularly when you see from the balance-sheet that the first two of these funds are supported by specific investments, the market values of which are in excess of book values. As you will observe from the report, your Board propose, subject to your passing the necessary resolution, to pay a final dividend to Dec. 31 last at the rate of 6½% per annum, less income-tax, which I trust you will agree is satisfactory.

The price of gas to ordinary domestic consumers has remained unchanged during the year, but, as I foreshadowed a year ago, it was necessary to advance the charges for gas supplied to the industrial contract consumers consequent upon the increased charges for coke oven gas to which I have already referred. We merely passed on the increase which we had to pay under the coal slide clause in the Grid Agreement and your Company derived no benefit. In addition to the increased cost of coke oven gas and other materials purchased by the Company, further advances in wages have had to be met, and the Company will be involved in considerable additional expenditure when the Government's National Health Insurance scheme comes into operation. The total amount of new and replacement mains laid during the year was 3½ miles, bringing the total length of mains in the company's area to 1,393 miles.

Some 401 services have been laid or renewed during the year. Work in the fittings department continues to be restricted owing to the difficulty in obtaining appliances and also to the shortage of manpower, nevertheless a limited amount of work has been undertaken and a number of important contracts carried out for private consumers as well as for local authorities.

The actual value of the business done in the sales department shows a substantial advance on the previous year, the district showrooms, both in Sheffield and in the outer areas having contributed largely to this satisfactory result.

Demands for Apparatus

During the war years it has not been possible to meet the consumers' demands for gas heating and cooking apparatus of all types, but it is anticipated that the position in this respect will steadily improve as the manufacturers complete the change-over to peace time production. The return to normal street-lighting subsequent to the close of hostilities was a very welcome change after the long period of "blackout" conditions, and the adequate illumination provided by the gas lamps in the Sheffield streets has been the subject of much favourable comment. Gas street lighting has also been resumed in a number of the outer areas of your Company's limits of supply with satisfactory results.

Much of the work of the research department during the year has been concerned with the question of industrial fuel economy, the need for which has been and still remains very acute. The staff of this department has closely collaborated with that of the industrial department. The demand for industrial gas still exceeds the available supply, in spite of the fact that most of the works in Sheffield and elsewhere have been switched over from war work to their normal form of production. The main reason for this demand is undoubtedly the present trend in furnace design. Furnaces to-day are assuming more than ever the nature of machines, and for this type of furnace there is no alternative fuel to town gas.

Once more I am glad to assure you that the works have been maintained in a high state of efficiency. Work on the second half of the vertical retort installation at the Neepsend Works, to which I referred last March, was commenced early in the year. Half of this second section was brought into operation towards the end of the year, and the resetting of the final section is proceeding satisfactorily. Close attention has been paid to the state of repair at all the works, and I am glad to tell you that in spite of the scarcity of material and labour the repair work is well in hand.

At an extraordinary general meeting of the Company held in September last the stockholders authorized your Directors to make application to the Ministry of Fuel and Power for sanction to purchase the undertaking of the Worsbroughdale and Worsbrough Gas Light and Coke Company. The application has been made, but up to the present time the Ministry's sanction has not been received.

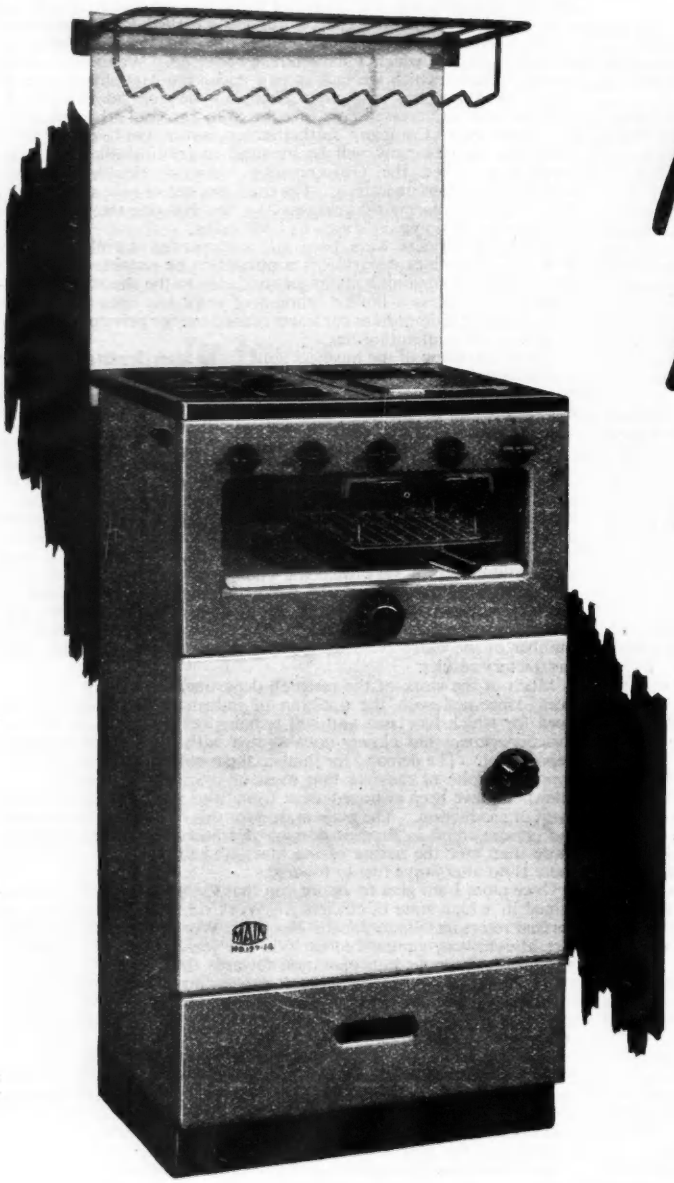
You will no doubt expect me to say something about the Heyworth Report, as well as the Government proposal to nationalize the Gas Industry. Perhaps I may preface my remarks by reminding you that the Sheffield and District Gas Company is the largest provincial gas company in the United Kingdom.

I think that the Ministry of Fuel and Power would admit that your undertaking has been neither inefficient nor unenterprising. Its statutory area of supply now covers some 328 sq. miles, and gas is distributed through a network of some 1,400 miles of mains to approximately 191,000 consumers.

Gas Grid Pioneer

Your Company was the pioneer of the gas grid system, thus utilizing the waste gas from coke ovens, which was previously blown to air. Few, if any, of the reasons advanced for the nationalization of coal are present in the case of gas. Unlike the miners, our employees are co-partners with us in our enterprise, and have, we believe, no desire to forfeit their co-partnership.

Your Company is a thoroughly democratic organization with much-valued municipal representatives on its board. Although we are a prosperous undertaking we cannot be accused of profiteering, for as a public utility company we have felt it our duty to give the community the benefits of cheap gas rather than pay higher dividends to our stockholders. As a statutory undertaking we have always been controlled



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In Grey Dapple and White Vitreous Enamel finish

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COMPANY MEETINGS—cont.

by Parliament, and since 1939 more completely by the Ministry of Fuel and Power, so that nationalization can add nothing to the absolute powers which the Government already possess.

Under these circumstances it is difficult to see how the Government expect to gain more by nationalization than can be obtained much more easily by less disruptive methods. If the Heyworth Report were implemented, three directors would definitely be Government officials and the remainder Government nominees, which would not mean either cheaper gas or better service. On the contrary, the Government nominees would certainly tend to be more cold-blooded and less responsive to local considerations or the needs of our highly specialized industries than directors who, by long association, are familiar with the requirements of the area.

The Heyworth Committee are obliged to admit that under its "existing structure" the Gas Industry as a whole is "reasonably efficient." This, having regard to the number of undertakings concerned—"more than 1,000"—is surely high praise, and constitutes one of the many reasons why your Board cannot approve of the application of the policy of nationalization to gas. The committee's recommendation of larger zones is a matter of common agreement.

The British Gas Federation, in response to the invitation of the then Minister of Fuel and Power, in 1943 submitted a "report" recommending a bold plan of voluntary integration to accomplish a similar object. Although, therefore, we agree with the Heyworth Committee on the general principle of larger zones, we consider that the 10 autonomous regions they suggest are far too large and unwieldy to be a workable proposition, having regard to the number of consumers in a population of 46,000,000 at present served by 1,047 gas undertakings.

If the Government would, through the Ministry of Fuel and Power, facilitate accelerated integration on the lines successfully adopted by your Company during the last 20 years, providing for the absorption of the smaller and less economic units by larger undertakings, the way would be paved for such zones as the Heyworth Committee have in view, but smaller. Your Company has from time to time taken over adjacent areas supplied by smaller undertakings, which, by reason of their lack of resources, were incapable of giving their consumers the benefits of such service as your Company, with its superior organization, was able to afford.

More Efficient Service

These areas, some of them previously owned by local authorities' undertakings, have all gained a more efficient service and generally coupled with reduced prices for gas. As regards municipal and local authorities, I suggest these should be left alone for the present. Some of the smaller would probably be glad in the interests of their consumers to sell to their larger and better-equipped neighbours.

There is no evidence whatever to justify the Heyworth Committee's contention that voluntary integration would be too slow a process, as neither Parliament nor any Government has ever yet done anything to accelerate such a policy. Speaking for your Company, and no doubt many others are faced with similar problems, all we ask is permission to put our own house in order and encouragement to progress and expand. Though our eventual zones might not be so large as those visualized by the Heyworth Committee, they would have the advantage of being the result of natural growth instead of the produce of an artificial plan compulsorily imposed, which would disrupt the Gas Industry and cause an immense amount of trouble to all concerned.

The word "ancillary," which means "subservient," has been grossly overstressed—we certainly use coal for the manufacture of gas as other industries use both coal and gas for the manufacture of their products. Where does this "ancillary" chain end? We claim to be an independent industry.

No Case for Nationalization

For all these reasons we consider that no case has been made out for nationalizing the Gas Industry, and we do not forget that Mr. Herbert Morrison, Lord President of the Council, when addressing an American audience in Washington, used the following words: "We shall not nationalize out of any idea for the implementation of abstract socialist theory, but for the fact that the industries concerned must be reorganized and placed at the efficient service of the country." The Gas Industry has a splendid record of efficient service to the community, especially during the war years, and by Mr. Morrison's test is not a fit subject for nationalization. Unless, therefore, Mr. Morrison speaks with one voice in America and another in this country, which I should be sorry to think, we should count him on our side.

From all quarters of the country those responsible for carrying on the Gas Industry have protested, not against the principle of nationalization, but against the application of such a policy to an efficient and progressive Industry without any proof of necessity or desirability. We can only hope that the Government will re-examine the matter in the light of the powerful arguments which have been adduced by those best qualified to know, and will give the Industry the opportunity to develop and expand on the lines suggested in the report of the British Gas Federation.

Pending a final decision, I do not propose to discuss the difficult question of compensation in the event of the Industry being nationalized. This would probably be a matter of prolonged arbitration with results satisfactory to neither side. As regards the immediate future of your Company, your Board will do its best to promote its interests and those of both industrial and domestic consumers in every way possible, however discouraging the outlook may be.

The report and accounts were adopted.

Radiation Ltd.

At the Ordinary General Meeting of Radiation Ltd. the Chairman, **Mr. J. F. Davies,** said: Before dealing with the figures in the accounts I would like to say how glad we have been to welcome back many of our employees who have been serving with His Majesty's Forces. One of my colleagues on the Board, Mr. J. K. N. Davis, who has been serving afloat with the Royal Navy, is now with us again.

The gross income from subsidiary Companies for the year to December, 1945, was £293,078, and the net income for the year after deducting income tax and including transfer fees and bank interest is £147,461. These two amounts compare with the corresponding figures of £294,978 and £148,522 for the previous year. The balance of profit available is £289,771 after bringing in the balance from the previous year and deducting the interim dividend paid on the Preference stock. It is proposed to pay the final dividend on the Preference stock for the year 1945, and a dividend of 10% less income tax, on the Ordinary stock for the year. These dividends together will absorb £129,441, leaving a balance of £160,330 to be carried forward to the credit of profit and loss account, showing a small increase of £1,707 compared with the balance carried forward a year ago.

On the Radiation balance-sheet the principal item on the assets side is investments in and amounts owing by subsidiary Companies, £3,878,427. That item appears also on the liabilities side of the combined statement of assets and liabilities of the subsidiary Companies and it represents the total cost to Radiation of its interest in the subsidiary Companies. Turning to the statement of combined assets and liabilities, the item freehold and leasehold buildings and plant, machinery, &c., at £1,187,782 shows the substantial increase of £158,722, compared with the amount a year ago.

Our programme and plans for the reorganization and re-equipment of the works of our subsidiary Companies are making steady progress, and expenditure so far incurred in this respect is shown by the increase in the item just mentioned. The increase of £158,722 represents expenditure incurred during the past year, less the usual sound provision for depreciation. Stocks, sundry debtors and investments show substantial increases. On the other hand, cash balances have declined by £753 089, further investment having been made during the year and moneys used in replenishing stocks and purchasing plant, &c. On the other side of the statement sundry creditors, taxation, and pensions reserves at £1,392,923 show an increase of £79,542 over last year's figure, due to increased liabilities for purchase of materials and equipment.

The reserve for post-war remains at £750,000. This reserve was set up in 1943 for the purpose of meeting expenditure anticipated in the post-war period for development and re-equipment of the undertaking of the Company. It is probable that the completion of our programme now in hand will fully absorb the amount of this reserve. The reserve has not been reduced, however, by the expenditure during 1945 on re-equipment: that expenditure, as I have already mentioned has been added to the book value of the freehold and leasehold buildings, plant, machinery, &c.

The balance to the credit of the profit and loss accounts of the subsidiary Companies now stands at £41,9577, compared with £327,670 a year ago. The difference between those two sums, namely £91,907, represents the balance of profit for the year after providing for taxation and dividends to Radiation Ltd.

Our problem to-day is concerned with production. The scarcity of man-power is a factor which still applies, and must affect results for some time to come. When, in due course, labour is available, we will be able to meet the big demand for our many specialties.

We have made it our policy always to supply goods of the best possible design and quality for the particular market in view, and to supply these at an economic charge, rather than endeavour to manufacture to a price which involves sacrifice of quality, and which cannot provide such margins as are required to cover the cost of research and development work.

Before the formation of Radiation Ltd. the constituent Companies had set up laboratories within their organizations. These have been extended by the parent Company, and our research and development sections now play a most important part in the work of the Group. Research work, which before the war was largely confined to investigations of an *ad hoc* nature, is being taken up again, but it is our intention to give more time and energy to the examination of fundamental problems of combustion and heat transmission. All our products are based on technical research, the technical research sections of the laboratories producing the specifications used by the development

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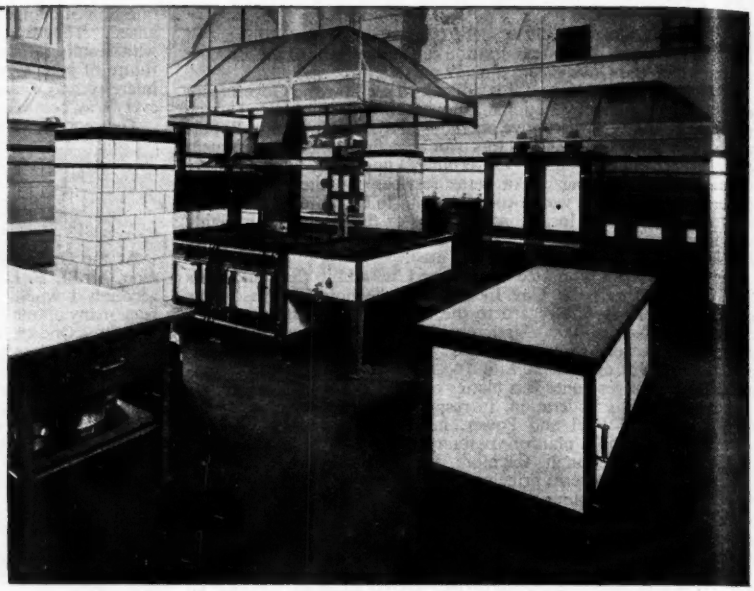
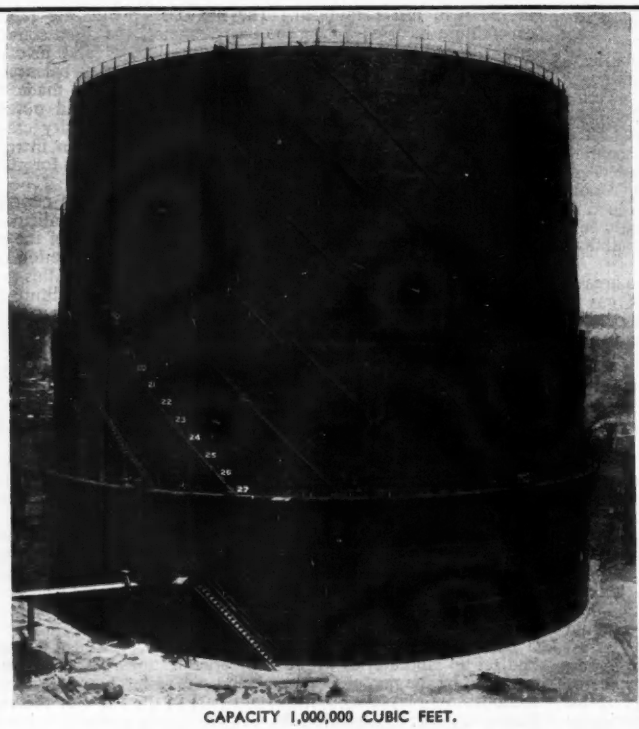


The Company manufactures Cooking Apparatus for Gas and Steam Fuels, and undertakes the complete planning of kitchens. Kitchen planning is specialists work and includes service lifts (if any), drainage, ventilation problems, refrigeration, food preparation, storage and reception of goods. Illustration—Caius College, Cambridge. Installation of 1936 vintage.



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COMPANY MEETINGS—cont.

department for the building of the prototype appliances on which bulk production is based.

We are in close touch with several university departments specializing in fuel problems. It is very desirable that the universities should review the state of knowledge regarding gaseous combustion, and we feel that the Gas Industry should use every endeavour to stimulate such activities. In the past our organization has thriven under competitive conditions and, although in the future there may be some curbing of individualism and an increase of co-operative efforts, there is no need for individuality to be lost in machine-like standardization. In the sphere of fundamental research there are unlimited possibilities for full and frank co-operation which should result in great rewards, both moral and material, for the Industry.

We expect very shortly to be able to offer to the public, through gas undertakings, a number of our new products. In developing these we have had well in mind the needs of the housewife for apparatus of the highest utility with maximum labour-saving. Cookers with new features have been designed, with hotplate burners of improved efficiency and performance, and ovens yielding cooking results which are superior even to the already high standard attained with pre-war New World cookers. The cleanable feature introduced just prior to the war is now standardized on the well-known Regulo control. A new patented oven burner arrangement is incorporated which, with its vitreous enamelled enclosure, much enhances the appearance of the oven interior and is very easily kept clean.

For space heating our Silent Beam fire will be offered in a variety of designs which will give a complete range of radiant heating appliances for all normal requirements. Its silence in operation, comfortable warmth and pleasing appearance when alight, no less than the practical elimination of need for servicing, make this appliance a notable contribution to space-heating equipment for consumer and gas undertaking alike.

For water heating we have in hand appliances of high effectiveness for all needs. Thermal efficiencies will be at the customary high level, and the new appliances will incorporate materials found by our Research Laboratories to be very resistant to corrosion by flue gases. We have every confidence that in Radaloy we have a material with outstanding properties in reducing maintenance attention to the very minimum—an obvious benefit both to the consumer and to the gas undertaking. Our range of hot-water appliances covers both storage and instantaneous systems, so that we are in a position to deal with any of the many and varied domestic water-heating demands.

In conjunction with water heaters for hard water districts, we have developed an accessory for reducing the liability to scale deposition, which again will help materially in eliminating unnecessary maintenance expenditure. In all appliances our aim is to achieve the highest efficiency in operation, and to reduce running costs and maintenance attention to a minimum.

In order to demonstrate the high standard of service given by our new appliances, we collaborated with the Coventry City Architect in the planning of two experimental houses, and sponsored their erection. In these houses the cooking, space heating, hot water supply, and clothes washing and drying are taken care of by gas and coke-burning appliances working in combination. The high efficiency of these appliances, the correct planning of the house, and the proper insulation of the outside walls have each contributed to the attainment of an excellent standard of service and economy.

Some few years ago we were invited to investigate the heat services required for temporary prefabricated housing. As a result the open fire Siesta stove was developed to provide additional space heating in the living-rooms, along with hot water for domestic purposes. The method adopted by the Ministry of Works of providing background warmth by circulating air round the back of the Siesta stove and ducting it to the bedrooms is now being applied to permanent housing. In the past most people have had to be content to heat one room only, emphasizing the lack of warmth elsewhere. Now, however, the appliances which we have developed make it possible to have a continuous flow of warmth throughout the house, with practically the same overall heat expenditure as before. Further, a greatly improved hot-water service is provided. This outstanding result is obtained by the use of appliances having efficiencies two or three times greater than previous types.

It is a pleasure to me to place on record an appreciation of the valuable work done by all our employees during the past year. I would also like to take this opportunity to express our appreciation of their loyal service throughout the war period.

To Facilitate Maintenance of the built-in gas refrigerators in pre-fabricated houses the Coventry Gas Department has suggested to the Ministry of Works that the draining board be made a loose inset or slide-in type. In addition a 4-in. hole should be cut in the top galvanized casing of the refrigerator to enable the flue chamber to be completely exposed for ease and better maintenance. The hole would be covered by asbestos sheeting either screwed to the surrounding sheeting or left loose. The present method of fixing, while maintenance can be carried out, is not easy, and it is felt that to carry out maintenance quickly and efficiently the only method at present is to disconnect and pull the refrigerator from under the draining board.

Tin Research

The latest Report from the Tin Research Institute has something to say on each main application of tin, and it is plain that fresh fields are opening to this useful metal. Usefulness has always been a feature of tin, but it now enters the decorative field, in the alloy "speculum" challenging silver, nickel, and chromium as a brilliant electroplate finish. Speculum's other constituent is copper, and the Romans who gave the alloy this name were only able to cast it into massive plaques for use as mirrors; it can now be electroplated over any common metal. Bronzes have been intensively studied, and great improvements in quality of chill castings have resulted. The new methods require no special apparatus, and the Institute is prepared to demonstrate them in firms' own foundries.

Tinplate has also benefited from research, which has found how its resistance to rust and tarnish can be improved by a quick immersion in a chemical bath. Thin electro-coatings of tin on steel have been found to provide a good key for paint and to delay its weathering. The Report suggests that thin tin coatings are not costly to apply, and are likely to prove more efficacious than "phosphating" or an additional undercoat of paint.

Progress at Market Harborough

An impressive account of the development of the Market Harborough Gas Department, particularly during the war years, was given recently in the *Market Harborough Advertiser*. Erected by a company in 1833 and acquired by the Urban District Council in 1899, the works had a total output of 31 million cu.ft. in the latter year, which had grown to 118 million cu.ft. in 1939 and reached 146 million cu.ft. last year.

Plans for reconstruction and extension of the works under consideration in 1939 were postponed owing to the outbreak of war, but early in 1941 the demand for gas was so great that the installation of new vertical retorts with a capacity of 625,000 cu.ft. per day was sanctioned. Ancillary plant was renewed and extended in 1942, and the new retorts were brought into operation in 1943. Benzole plant was installed in the same year, and in 1944 new purification plant was erected and work commenced on a new static ammonia washer, which was completed and put to work last year. Work is at present in progress on a new carburetted water gas plant of 500,000 cu.ft. per day capacity, and completion is expected within the next few weeks, when the plant will be operated in conjunction with the coal gas plant during both normal and peak load periods as circumstances require. The ability to produce up to one million cu.ft. of gas per day is thus assured.

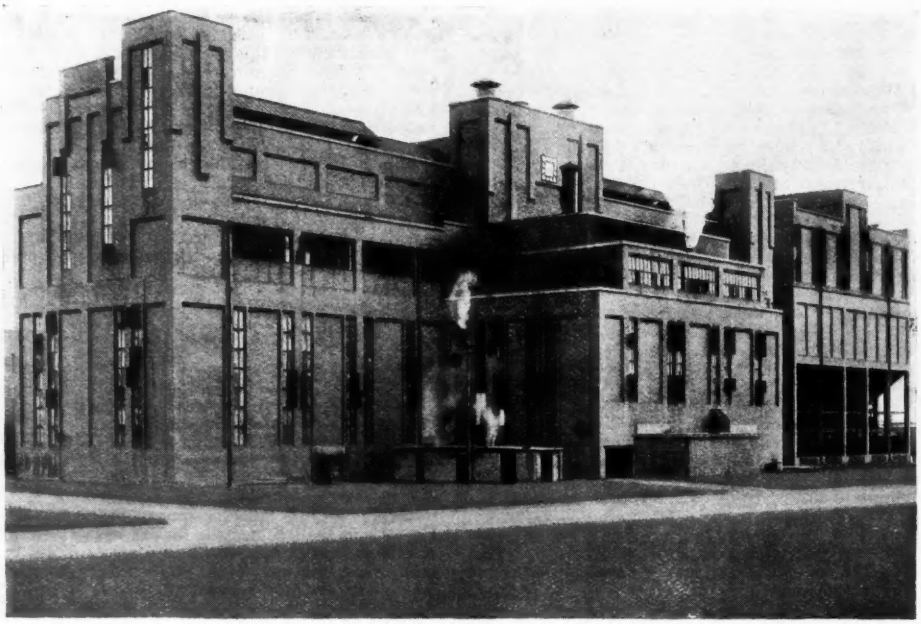
It is worthy of note that at the end of the last financial year the loan indebtedness of the undertaking was only £34,431, which was actually less than the original purchase price of the undertaking. Reductions in price by way of an allowance of discount were made last October, and further concessions, including the restoration of rebate to prepayment consumers, as recently as January. The finances of the Gas Department are kept separate from those of other branches of the Council's activities, and the balancing of the gas budget is reflected in the charges made for gas.

After paying tribute to the members of the Gas Committee, some of whom are about to retire from public service, the article says that Mr. P. R. Harris, Engineer and Manager, has been and is the mainspring of the business. To his initiative and enterprise the striking improvement and progress of the undertaking has been mainly due.

Coventry City Council has decided against a request by the Gas and Electricity Committees to hand back the central gas and electricity showrooms to the departments concerned, but has decided to allow the use of the showrooms to the British Restaurants until the latter have found suitable alternate premises. The main floors of the showrooms were taken over by the British Restaurants during the war after the heavy raids on Coventry.

The First Post-War Issue of *The Welder* (Jan.-Dec., 1945), published by Murex Welding Processes, Ltd., in the interests of electric arc welding, lists a few examples of war production in the design and fabrication of which welding was used to a very large extent, and indicates the vast field for welding in the immediate post-war reconstruction period and in future industry. Published monthly before the war, the magazine carried on throughout the war, first at bi-monthly intervals, then quarterly, and ultimately once a year, and it is hoped to resume monthly publication as soon as circumstances permit.

On the Advice of Mr. L. A. Thorman, Regional Gas Officer of the Ministry of Fuel and Power, Nottingham, Swadlincote Urban District Council has decided to ask Mr. A. W. Elliott, of Derby, to make an inspection of the works prior to submitting proposals for reconstruction to the Ministry. Mr. Thorman considered that every alternative to reconstruction should be explored, and that the possibility of obtaining a bulk supply should be examined. The clerk has been instructed to make enquiries. The Council proposed to spend £61,000 on reconstruction.



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COMMUNICATION No. 230—PROCEEDINGS OF THE INSTITUTION OF GAS ENGINEERS 1939-40, p. 455.

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Home Planning Exhibition

The British Gas Council has produced as a worthy successor to last year's Kitchen Planning Exhibition, which finished its itinerary at Edinburgh in December, a well-designed Home Planning Exhibition, which will open its tour at Manchester in April and move on later to other provincial towns. Of the many objects in view in arranging the Exhibition, which may be summed up as a practical demonstration of the Gas Industry's contribution to post-war housing, two of the most significant are mobility, so that as many regions may be visited as possible, and the display of appliances that are not unrealized dreams of the future, but are actually in production and available—perhaps not yet for the casual caller at the gas showrooms, but certainly for houses built by local authorities under Government schemes, which naturally have a high priority.

We had a preview of the exhibition at the West Hampstead works of Beck & Pollitzer, Ltd., a few days ago, and were favourably impressed. The kitchens are attractive in design, practical and labour-saving. They are planned to provide the maximum efficiency in cooking, refrigeration, heating, water heating, and home laundry for the working man's home. Designed for several different types of home—the small flat, the converted house, and the medium size family house in town or country—they have all been approved by experienced housewives.

Standard fitments are used exclusively in the planning of all the kitchens. Mainly as the result of the work of the British Standards Institution, attractive and efficient combinations of these units are grouped together in a variety of ways to fit kitchens of all shapes and sizes. Standard cupboards and built-in equipment, by making the utmost use of available space, bring even the old-fashioned, badly planned kitchen into line with modern conceptions. Separate units on show include cupboards, storage shelves, plate racks, &c., and the English Joinery Manufacturers' Association has a composite display of kitchen equipment in wood. So far as gas appliances are concerned credit is given to members of the Society of British Gas Industries, and, with unobtrusive exceptions, no mention is made of individual manufacturers. It is essentially a Gas Industry show, with no intention to promote direct sales, although full information regarding the source of supply of the appliances is available to housing authorities and others directly concerned.

Based on Government inspired plans, a Portal type of kitchen demonstrates the possibilities of prefabricated units fitted together in a small but well-planned space. The kitchen includes a built-in cooker, refrigerator, a gas water heater for summer use, and a wash boiler, stored under a draining-board when not in use. Special points about the kitchen are the smooth uniform surfaces to save unnecessary labour, and the concealment of the hot and cold water pipes, waste pipes and service pipes in the middle of the unit.

A replica of the kitchen originally designed for one of the demonstration houses at Northolt has a dining annexe which permits the housewife to keep an eye on her children while getting on with her work. The kitchen is planned for a combination of gas and coke, and above the gas-poker ignited coke boiler is a gas circulator for heating baths in the summer. There is an instantaneous gas water heater over the sink, and the gas cooker is of the horizontal type, with hotplate level with the top of the oven. A cupboard under one of the draining boards houses the gas wash copper, to which a wringer can be attached.

An innovation is a kitchen planned round the new Ministry of Works prefabricated heat unit. Supplied in three sections, to form one unit when erected, the heating and got water component extends to the full height of the house. In the model shown in the Exhibition the unit has a gas-ignited coke fire (in the living room) with back boiler to heat a 30-gall. tank of water, serving bath, basin, sink, towel rail, and drying cupboard. A gas circulator fitted to the tank provides hot water when required in the summer months, and gas supplies heat to the drying cabinet when the coke fire is not in use. A feature of the layout is the system of warm air ducts to the dining annex and the two bedrooms adjacent to the unit on the first floor. A panel gas fire mounted on one face of the unit gives additional warmth to one of the bedrooms.

Of particular interest is a kitchen designed by Sir Percy Thomas, President of the Royal Institute of British Architects. Composed of standardized units it is an excellent example of sequence planning, with built-in gas cooker, refrigerator, cupboards, sink, and draining boards in the correct working sequence. A separate laundry room is equipped with a gas wash boiler and gas drying cupboard. Hot water is provided by a back boiler installed with the living room gas-ignited coke fire, supplemented by a gas water heater for summer use.

Occupying a central position is a back-to-back kitchen bathroom unit—an improvement upon that shown at the Kitchen Planning Exhibition last year—exemplifying the advantages of prefabricated ducting and pipework. Plastics and aluminium have been enlisted in the evolution of the new design, which includes a gas-heated sink, capable of being used not only for its normal purpose, but as a boiler for the family wash, or for bottling fruit, &c. It has a close-fitting lid and an extractor to prevent steam from escaping into the kitchen. A modern gas cooker and a gas refrigerator are included in the kitchen unit, backing on to which is the bathroom, with bath and hand basin, the hot-water supply for these being provided by an instantaneous gas water heater.

At one end of the Exhibition is a miscellaneous display of small appliances, such as gas rings, portable and fixed fires, and at the other there is a series of three gas hot water service panels, consisting of "live" diagrams illustrating the working of alternative coke and gas, thermal storage, and instantaneous systems. To a large extent the panels are self-explanatory, but a press-button system switches on a recorded commentary by Mr. F. H. Grisewood. Beside the three panels there is a working model of a Potterton gas-fired thermal storage set supplying hot water for normal domestic purposes, with storage capacity ranging from 15 to 60 gall.

Gas Undertakings' Results

Cheltenham and District Gas Company.—Revenue account shows a profit for 1945 of £25,392, against £18,897 for the previous year, and a final dividend of 2½%, making 5% for the year, leaves a carry-forward of £24,606, against £24,658 brought in. Gas sales at 5,418,130 therms show a slight decrease of just under 0.19%, bringing in £271,189, against £263,432. Ordinary consumers increased by 17 and prepayment consumers by 32, making a total of 28,968.

Eastbourne Gas Company.—There was a substantial recovery in gas sales in 1945, the total output being 3,041,160 therms, an increase of 22.4% over the previous year. Owing to evacuation and enemy action Eastbourne suffered badly during the war, and the 1945 figure is still nearly 9% below the 3,352,335 therms sold in 1938. Profit on revenue account was £41,276, compared with £18,778, and the net profit was £11,576. No dividends were paid last year, but standard rates are now paid on the Preference stock, 5% on the "A" Ordinary stocks, and 3½% on the "B" Ordinary stock, leaving £1,788. Losses incurred in trading in 1940–43, less a surplus in 1944, amounting to £36,215, were transferred as from Jan. 1, 1945, to a net revenue deficiency suspense account. With credits on tax account and the 1945 net balance of £1,788, the loss carried forward has been reduced to £18,512, and as surplus profits become available further transfers in reduction of this balance will be made from time to time.

Farnham Gas and Electricity Company.—Profit on the gas revenue account for 1945 was £17,840, compared with £19,292 for the previous year. Payment of a dividend of 6% leaves a balance of £11,165 to be carried forward, against £9,303 brought in. Gas sales amounted to 1,955,323 therms, yielding £108,808, compared with 1,856,045 therms, yielding £104,085, in 1944.

Gloucester Gas Light Company.—Of a total revenue of £358,279 for the year ended Dec. 31, a balance of £22,211 was carried to profit and loss account. The balance of net profit to be carried forward, subject to final half-year dividend and appropriations, was £24,011. A final dividend of 2½% makes 5% for the year, leaving £17,266. Gas sales showed a decrease of 77,071,000 cu.ft., or 6.37% compared with the previous year. Consumers at the end of the year totalled 20,648, of whom 12,156 were ordinary and 8,492 prepayment.

Keswick Gas Company.—The Directors announce in their annual report that they have decided to resume the hire purchase of gas-consuming appliances as and when apparatus can be secured. After allowing for depreciation of cookers and meters, the revenue account for 1945 shows a balance of £710 on the year's working. This has been added to profit and loss account on which, after providing for interest, tax, &c., there remains a balance of £1,945. The Company is paying a dividend of 10% on Original capital and 7% on Additional capital, less tax, leaving £1,414 to be carried forward.

Londonderry Gaslight Company.—Profit on revenue account for 1945 amounted to £2,970, which, with the balance brought forward, provision no longer required for taxation and depreciation of investments, and profit on sale of investments, made a total of £29,918. Payment of dividends at 5% on old shares and 3½% on new shares eaves £13,059 to be carried forward. In the revenue account £9,500 has been charged to meet the cost of future renewals and £1,000 to meet war damage contribution. Income from the sale of 280,804,200 cu.ft. of gas was £74,526, and manufacturing costs were £64,630.

Newport (Mon.) Gas Company.—The effect of the transition from war to peace conditions is reflected in a slight decrease in gas sales, the total for 1945 being 6,156,412 therms, bringing in £180,217, against 6,300,059 therms (£178,983) for the peak year 1944. Revenue account showed a profit of £49,588 against £51,983. A final dividend of 3½%, making 6% for the year, leaves £12,218 to be carried forward, against £12,245 brought in. Consumers increased from 20,452 to 20,710, and the price of gas remained unchanged at 1s. 1.5d. per therm for ordinary consumers, 1s. 4.11d. for prepayment, and 10.4d. for industrial.

South Staffordshire Mond Gas Company.—Profit for the year ended Dec. 31, excluding dividend paid by Melanoid, Ltd., amounted to £12,966, which was a reduction of approximately £19,500 on the previous year's profit. Of this, about £14,000 was the result of a 10% reduction in gas prices which the Board had promised to grant to consumers immediately on the termination of hostilities, and the balance of the reduction was due to exceptionally heavy costs and lower gas sales. The amount of fuel gasified during the year was 5% less than in 1944, and the cost of fuel gasified was 9.7% more. Gas distributed during the year was 7% less than in 1944. An Ordinary dividend of 1½%, less tax, was declared at the annual meeting on Feb. 28.